

Appendix O

Air Emissions Rates and Emission Calculations

This appendix contains tables extracted from Appendix B of Western Greenbrier Co-Generation, LLC Addendum to PSD Permit Application, dated October 21, 2005. The addendum was submitted to West Virginia Department of Environmental Protection in November 2005 as part of WGC's PSD permit application. On April 2006, WVDEP DAQ issued a PSD Permit (R14-0028) to WGC for the proposed construction of the waste coal-fired steam electric co-generation facility. The PSD Permit, which is a publicly accessible document, provides detailed information on the emission sources associated with the facility and the conditions under which the facility must be operated.

ATTACHMENT 1

Emission Calculations

Line of Performance

Western Greenbrier

Load	MCR
Fuel	Performance Fuel (as of 4-19-05)
Limestone	Performance Limestone (as of 6-05)
Turbine Balance	ISO Ambient - 100% Output Case 159 Rev E

Date	17-Aug-05
Engineer	L.Gatton

Steam Flow	lb/hr	759,136
SH Outlet Temperature	F	1,055
SH Outlet Pressure	psig	1,870
Feed Water Temperature	F	430
Combustor Temperature	F	1,646
Gas Temperature Leaving Air Heater	F	306
Ambient Air Temperature	F	59
Gas Flow Leaving Unit	lb/hr	1,142,800
Air Flow Entering Unit	lb/hr	1,035,600
Excess Air	%	20
Fuel Efficiency	%	82.38
Q Fired	MBtu/hr	1,016.9
Fuel Flow	lb/hr	243,860
Limestone Flow	lb/hr	55,960
Total Ash Flow	lb/hr	192,650
Total Condensate Duty in FBACs	MBtu/hr	5.3

Efficiency

Dry Gas Loss	6.33
Moisture in Fuel	1.63
Combustion of Hydrogen	4.06
Moisture in Air	0.09
Moisture in Sorbent	0.06
Calcination Heat Loss	3.57
Sulfation Heat Loss (Gain)	-2.14
Carbon Loss	3.00
Heat Loss in Ash	1.48
Radiaion Loss	0.24
Manufacturer's Margin	0.00
Unaccounted Loss	0.10
Total Losses	18.42
Fan Credits	0.80
Total Efficiency	82.38

Fuel Analysis (%)

Performance Fuel

Heating Value (HHV) Btu/lb	4,170
Carbon	26.85
Hydrogen	1.62
Nitrogen	0.68
Oxygen	3.06
Sulfur	1.47
Ash	60.51
Moisture	5.81
Total	100.00

Limestone Analysis (%)

Performance

CaCO3	80.00
MgCO3	3.70
Inert	15.30
Moisture	1.00
Total	100.00

Reactivity Medium

45% Calcium Utilization 60X100M@160min

Line of Performance

Western Greenbrier

Load	MCR
Fuel	Design High Sulfur/Ash Coal High Moisture (as of 4-19-05)
Limestone	Design Limestone (as of 6-13-05)
Turbine Balance	100% Output - Design Fuel Case 259 Rev A

Date	17-Aug-05
Engineer	L.Gatton

Steam Flow	lb/hr	759,136
SH Outlet Temperature	F	1,055
SH Outlet Pressure	psig	1,870
Feed Water Temperature	F	430
Combustor Temperature	F	1,600
Gas Temperature Leaving Air Heater	F	317
Ambient Air Temperature	F	59
Gas Flow Leaving Unit	lb/hr	1,290,900
Air Flow Entering Unit	lb/hr	1,159,700
Excess Air	%	20
Fuel Efficiency	%	78.40
Q Fired	MBtu/hr	1,068.5
Fuel Flow	lb/hr	313,450
Limestone Flow	lb/hr	84,950
Total Ash Flow	lb/hr	267,200
Total Condensate Duty in FBACs	MBtu/hr	10.2

Efficiency

Dry Gas Loss	7.07
Moisture in Fuel	2.40
Combustion of Hydrogen	4.35
Moisture in Air	0.10
Moisture in Sorbent	0.09
Calcination Heat Loss	4.60
Sulfation Heat Loss (Gain)	-2.40
Carbon Loss	3.00
Heat Loss in Ash	2.87
Radiaion Loss	0.24
Manufacturer's Margin	0.00
Unaccounted Loss	0.10
Total Losses	22.42
Fan Credits	0.82
Total Efficiency	78.40

Fuel Analysis (%)

Performance Fuel

Heating Value (HHV) Btu/lb	3,409
Carbon	23.31
Hydrogen	1.41
Nitrogen	0.59
Oxygen	2.66
Sulfur	1.35
Ash	63.71
Moisture	6.97
Total	100.00

Limestone Analysis (%)

Performance

CaCO3	70.00
MgCO3	5.60
Inert	23.40
Moisture	1.00
Total	100.00

Reactivity Low
25% Calcium Utilization 60X100M@160min

TABLE B-1
WESTERN GREENBRIER, LLC
Facility-Wide Maximum Potential Emissions

POLLUTANT	All Values in tons/year								TOTALS
	CFB	Kiln	Cooling Tower	Material Handling	Storage Pile	Roads	Oil Storage Tank	Fire Pump	
CRITERIA									
PM	134	4.86	3.45	1.09	0.072	12.33		0.13	156
PM10	134	4.86	3.45	0.49	0.034	1.90		0.13	145
SO2	624	23						0.003	646
NOx	445	159						1.86	607
CO	891	96						0.40	988
VOC	26.7	4.56					0.027	0.15	31
Pb	0.22	0.003							0.227
H2SO4	26.73	0.97							28
METAL HAPS									
Antimony compounds	9.61E-03	1.22E-04							0.0097
Arsenic compounds	2.19E-01	2.77E-03							0.2218
Beryllium compounds	1.12E-02	1.42E-04							0.0114
Cadmium compounds	2.72E-02	3.44E-04							0.0276
Chromium compounds	1.39E-01	1.76E-03							0.1406
Cobalt compounds	5.34E-02	6.75E-04							0.0541
Manganese compounds	2.62E-01	3.31E-03							0.2650
Mercury compounds	1.34E-02	4.86E-04							0.0138
Nickel compounds	1.50E-01	1.89E-03							0.1514
Selenium compounds	6.94E-01	8.78E-03							0.7031
ORGANIC HAPS									
PAH	1.11E-02	1.40E-04							0.0112
Acetaldehyde	3.04E-01	3.85E-03							0.3083
Acetophenone	8.01E-03	1.01E-04							0.0081
Acrolein	1.55E-01	1.96E-03							0.1568
Benzene	6.94E-01	8.78E-03							0.7031
Benzyl chloride	3.74E-01	4.73E-03							0.3786
Bis(2-ethylhexyl)phthalate	3.90E-02	4.93E-04							0.0395
Bromoform	2.08E-02	2.63E-04							0.0211
Carbon disulfide	6.94E-02	8.78E-04							0.0703
2-Chloroacetophenone	3.74E-03	4.73E-05							0.0038
Chlorobenzene	1.18E-02	1.49E-04							0.0119
Chloroform	2.08E-02	2.63E-04							0.0211
Cumene	2.83E-03	3.58E-05							0.0029
Cyanide	1.34E+00	1.69E-02							1.3522
2,4-Dinitrotoluene	1.50E-04	1.89E-06							0.0002
Dimethyl sulfate	2.56E-02	3.24E-04							0.0260
Ethyl benzene	5.02E-02	6.35E-04							0.0508
Ethyl chloride	2.24E-02	2.84E-04							0.0227
Ethylene dichloride	2.14E-02	2.70E-04							0.0216
Ethylene dibromide	6.41E-04	8.10E-06							0.0006
Formaldehyde	1.28E-01	1.62E-03							0.1298
Hexane	3.58E-02	4.52E-04							0.0362
Isophorone	3.10E-01	3.92E-03							0.3137
Methyl bromide	8.55E-02	1.08E-03							0.0865
Methyl chloride	2.83E-01	3.58E-03							0.2867
Methyl ethyl ketone	2.08E-01	2.63E-03							0.2109
Methyl hydrazine	9.08E-02	1.15E-03							0.0919
Methyl methacrylate	1.07E-02	1.35E-04							0.0108
Methyl tert butyl ether	1.87E-02	2.36E-04							0.0189
Methylene chloride	1.55E-01	1.96E-03							0.1568
Phenol	8.55E-03	1.08E-04							0.0087
Propionaldehyde	2.03E-01	2.57E-03							0.2055
Tetrachloroethylene	2.30E-02	2.90E-04							0.0233
Toluene	1.28E-01	1.62E-03							0.1298
1,1,1-Trichloroethane	1.07E-02	1.35E-04							0.0108
Styrene	1.34E-02	1.69E-04							0.0135
Xylenes	1.98E-02	2.50E-04							0.0200
Vinyl acetate	4.06E-03	5.13E-05							0.0041
Total PCDD/PCDF	1.30E-04	1.65E-06							0.0001
OTHER HAPS									
HCl	5.34	0.07							5.409
HF	8.55	0.11							8.654
TOTAL HAPS									20.63

TABLE B-2
WESTERN GREENBRIER, LLC
Estimated Criteria Emissions from CFB and Kiln

OPERATING DATA			
	CFB		Kiln
	Short Term	Long Term	
	Design Fuel	Preferred Fuel	
Hours per year		8,760	8,760
Input (MMBtu/hr)	1,070	1,017	37
Coal HHV (Btu/lb)	3,409	4,170	12,000
Input (tons coal/hr)	157	122	2
Capacity (ton/day)			208

POLLUTANT	CFB				KILN				STACK ⁴	
	EMISSION FACTOR		EMISSION RATE		EMISSION FACTOR		EMISSION RATE		EMISSION RATE	
	factor	units	LB/HR	TON/YR	factor	units	LB/HR	TON/YR	LB/HR	TON/YR
CRITERIA POLLUTANTS										
PM - Annual ³	0.03	lb/MMBtu	30.5	133.6	0.03	lb/MMBtu	1.11	4.9	31.6	138.5
PM - 24 Hr ³	0.03	lb/MMBtu	32.1		0.03	lb/MMBtu	1.11		33.2	
SO ₂ - Annual	0.14	lb/MMBtu	142	623.6	0.14	lb/MMBtu	5.18	22.7	147.6	646
SO ₂ - 3 hr Short Term	0.14	lb/MMBtu	150		0.14	lb/MMBtu	5.18		155.0	
SO ₂ - 24 hr Short Term	0.14	lb/MMBtu	150		0.14	lb/MMBtu	5.18		155.0	
NO _x - Annual	0.10	lb/MMBtu	102	445.4	36.40	lb/hr	36.40	159.4	138.1	605
NO _x - Short Term	0.10	lb/MMBtu	107		36.40	lb/hr	36.40		143.4	
CO - Annual	0.20	lb/MMBtu	203	890.9	2.54	lb/ton clinker	22.01	96.4	225.4	987
CO - Short Term ⁵	0.20	lb/MMBtu	214		2.54	lb/ton clinker	22.01		236.0	
VOC - Annual	0.006	lb/MMBtu	6.10	26.7	0.120	lb/ton clinker	1.04	4.56	7.1	31
VOC - Short Term	0.006	lb/MMBtu	6.42		0.120	lb/ton clinker	1.04		7.5	
H ₂ SO ₄	0.006	lb/MMBtu	6.42	26.7	0.006	lb/MMBtu	0.22	0.97	6.6	28
Pb	0.00042	lb/ton coal	0.07	0.224	0.00042	lb/ton coal	0.00065	0.0028	0.067	0.227

1 "Annual Emissions" are based on the expected annual average fuel, designated "Performance Fuel"

2 "Short Term Emissions" are based on the worst case fuel, designated "Design Fuel"

3 PM includes particulate and condensable

4 Kiln and CFB exhaust combined at entrance of stack

5 CO lb/MMBtu only valid at full load, lb/hr are worst case.

**TABLE B-2A
WESTERN GREENBRIER, LLC**

	Long Term Preferred Coal						Short Term Design Coal					
LOAD												
CFB, %	100%	75%	50%	100%	75%	50%	100%	75%	50%	100%	75%	50%
CFB Firing Rate, MMBtu/hr	1017	763	508	1017	763	508	1070	803	535	1070	803	535
Kiln, %	100%	100%	100%	0%	0%	0%	100%	100%	100%	0%	0%	0%
Kiln Firing Rate, MMBtu/hr	37.3	37.3	37.3				37.3	37.3	37.3			
Stack Data												
Stack Diameter	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Stack Exhaust Flow, acfm	379,136	288,143	197,151	355,398	270,102	184,807	423,222	321,649	220,075	399,483	303,607	207,731
Stack Exhaust Velocity, ft/s	55.90	42.5	29.1	52.4	39.8	27.2	62.40	47.4	32.4	58.9	44.8	30.6
Stack Exhaust Temperature, F	150	150	150	150	150	150	150	150	150	150	150	150
Emission Rates, lb/hr												
NOx ¹	138.1	112.7	87.3	101.7	76.3	50.9	143.4	116.7	89.9	107.0	80.3	53.5
PM10, Annual ²	31.6	24.0	16.4	30.5	22.9	15.3						
PM10, 24-hr	31.6	24.0	16.4	30.5	22.9	15.3	33.2	25.2	17.2	32.1	24.1	16.1
CO	225.4	220.3	210.2	203.4	198.3	188.1	236.0	230.7	220.0	214.0	208.7	198.0
SO2, Annual ²	147.6	112.0	76.4	142.4	106.8	71.2						
SO2, 24-hr	147.6	112.0	76.4	142.4	106.8	71.2	155.0	117.5	80.1	149.8	112.4	74.9
SO2, Short Term, 3-hr	147.6	112.0	76.4	142.4	106.8	71.2	155.0	117.5	80.1	149.8	112.4	74.9

1 Class II modeling based on Annual Preferred Case, for Class I analysis the Design Case (Short Term) cases were utilized

2 Annual Emission based only on Preferred Case

3 Short Term could be either Preferred or Design Cases

Western Greenbrier CO Performance versus % Load

Load	Performance Fuel			Design Fuel		
	Q Fired, mmb	CO, lb/mmbtu	CO, lb/hr	Q Fired, m	CO, lb/mmbtu	CO, lb/hr
100%	1,017	0.20	203	1,070	0.20	214
75%	763	0.26	198	803	0.26	209
50%	509	0.37	188	535	0.37	198

TABLE B-3
WESTERN GREENBRIER, LLC
Estimate of HAP Emissions from CFB and Kiln

COAL OPERATING DATA			
	CFB		Kiln
	Long Term	Short Term	
Hours of operation per year	8,760		8,760
Input (MMBtu/hr)	1,017	1,070	37
Coal HHV (Btu/lb)	4,170	3,409	12,000
Input (tons coal/hr)	122	157	2

POLLUTANT	EMISSION FACTOR		REFERENCE	EMISSION RATE						
	factor	units		CFB		Kiln		Stack		
				LB/HR	TON/YR	LB/HR	TON/YR	LB/HR	TON/YR	lb/MMBtu
HAZARDOUS AIR POLLUTANTS										
METAL HAPS										
Antimony compounds	1.80E-05	lb/ton	AP-42, Table 1.1-18	2.82E-03	9.61E-03	2.78E-05	1.22E-04	0.0029	0.0097	2.80E-06
Arsenic compounds	4.10E-04	lb/ton	AP-42, Table 1.1-18	6.43E-02	2.19E-01	6.32E-04	2.77E-03	0.0650	0.2218	6.39E-05
Beryllium compounds	2.10E-05	lb/ton	AP-42, Table 1.1-18	3.30E-03	1.12E-02	3.24E-05	1.42E-04	0.0033	0.0114	3.27E-06
Cadmium compounds	5.10E-05	lb/ton	AP-42, Table 1.1-18	8.00E-03	2.72E-02	7.86E-05	3.44E-04	0.0081	0.0276	7.67E-06
Chromium compounds	2.60E-04	lb/ton	AP-42, Table 1.1-18	4.08E-02	1.39E-01	4.01E-04	1.76E-03	0.0412	0.1406	3.91E-05
Cobalt compounds	1.00E-04	lb/ton	AP-42, Table 1.1-18	1.57E-02	5.34E-02	1.54E-04	6.75E-04	0.0158	0.0541	1.50E-05
Manganese compounds	4.90E-04	lb/ton	AP-42, Table 1.1-18	7.69E-02	2.62E-01	7.55E-04	3.31E-03	0.0777	0.2650	7.37E-05
Mercury compounds	3.00E-06	lb/MMBtu	Vendor Estimate	3.21E-03	1.34E-02	1.11E-04	4.86E-04	0.0033	0.0138	3.15E-06
Nickel compounds	2.80E-04	lb/ton	AP-42, Table 1.1-18	4.39E-02	1.50E-01	4.32E-04	1.89E-03	0.0444	0.1514	4.21E-05
Selenium compounds	1.30E-03	lb/ton	AP-42, Table 1.1-18	2.04E-01	6.94E-01	2.00E-03	8.78E-03	0.2060	0.7031	1.95E-04
ORGANIC HAPS										
PAH	2.07E-05	lb/ton	AP-42, Table 1.1-13	3.25E-03	1.11E-02	3.19E-05	1.40E-04	0.0033	0.0112	3.11E-06
Acetaldehyde	5.70E-04	lb/ton	AP-42, Table 1.1-14	8.95E-02	3.04E-01	8.79E-04	3.85E-03	0.0903	0.3083	8.57E-05
Acetophenone	1.50E-05	lb/ton	AP-42, Table 1.1-14	2.35E-03	8.01E-03	2.31E-05	1.01E-04	0.0024	0.0081	2.26E-06
Acrolein	2.90E-04	lb/ton	AP-42, Table 1.1-14	4.55E-02	1.55E-01	4.47E-04	1.96E-03	0.0460	0.1568	4.36E-05
Benzene	1.30E-03	lb/ton	AP-42, Table 1.1-14	2.04E-01	6.94E-01	2.00E-03	8.78E-03	0.2060	0.7031	1.95E-04
Benzyl chloride	7.00E-04	lb/ton	AP-42, Table 1.1-14	1.10E-01	3.74E-01	1.08E-03	4.73E-03	0.1109	0.3786	1.05E-04
Bis(2-ethylhexyl)phthalate	7.30E-05	lb/ton	AP-42, Table 1.1-14	1.15E-02	3.90E-02	1.13E-04	4.93E-04	0.0116	0.0395	1.10E-05
Bromoform	3.90E-05	lb/ton	AP-42, Table 1.1-14	6.12E-03	2.08E-02	6.01E-05	2.63E-04	0.0062	0.0211	5.86E-06
Carbon disulfide	1.30E-04	lb/ton	AP-42, Table 1.1-14	2.04E-02	6.94E-02	2.00E-04	8.78E-04	0.0206	0.0703	1.95E-05
2-Chloroacetophenone	7.00E-06	lb/ton	AP-42, Table 1.1-14	1.10E-03	3.74E-03	1.08E-05	4.73E-05	0.0011	0.0038	1.05E-06
Chlorobenzene	2.20E-05	lb/ton	AP-42, Table 1.1-14	3.45E-03	1.18E-02	3.39E-05	1.49E-04	0.0035	0.0119	3.31E-06
Chloroform	3.90E-05	lb/ton	AP-42, Table 1.1-14	6.12E-03	2.08E-02	6.01E-05	2.63E-04	0.0062	0.0211	5.86E-06
Cumene	5.30E-06	lb/ton	AP-42, Table 1.1-14	8.32E-04	2.83E-03	8.17E-06	3.58E-05	0.0008	0.0029	7.97E-07
Cyanide	2.50E-03	lb/ton	AP-42, Table 1.1-14	3.92E-01	1.34E+00	3.85E-03	1.69E-02	0.3962	1.3522	3.76E-04
2,4-Dinitrotoluene	2.80E-07	lb/ton	AP-42, Table 1.1-14	4.39E-05	1.50E-04	4.32E-07	1.89E-06	0.0000	0.0002	4.21E-08
Dimethyl sulfate	4.80E-05	lb/ton	AP-42, Table 1.1-14	7.53E-03	2.56E-02	7.40E-05	3.24E-04	0.0076	0.0260	7.22E-06
Ethyl benzene	9.40E-05	lb/ton	AP-42, Table 1.1-14	1.48E-02	5.02E-02	1.45E-04	6.35E-04	0.0149	0.0508	1.41E-05
Ethyl chloride	4.20E-05	lb/ton	AP-42, Table 1.1-14	6.59E-03	2.24E-02	6.48E-05	2.84E-04	0.0067	0.0227	6.32E-06
Ethylene dichloride	4.00E-05	lb/ton	AP-42, Table 1.1-14	6.28E-03	2.14E-02	6.17E-05	2.70E-04	0.0063	0.0216	6.01E-06
Ethylene dibromide	1.20E-06	lb/ton	AP-42, Table 1.1-14	1.88E-04	6.41E-04	1.85E-06	8.10E-06	0.0002	0.0006	1.80E-07
Formaldehyde	2.40E-04	lb/ton	AP-42, Table 1.1-14	3.77E-02	1.28E-01	3.70E-04	1.62E-03	0.0380	0.1298	3.61E-05
Hexane	6.70E-05	lb/ton	AP-42, Table 1.1-14	1.05E-02	3.58E-02	1.03E-04	4.52E-04	0.0106	0.0362	1.01E-05
Isophorone	5.80E-04	lb/ton	AP-42, Table 1.1-14	9.10E-02	3.10E-01	8.94E-04	3.92E-03	0.0919	0.3137	8.72E-05
Methyl bromide	1.60E-04	lb/ton	AP-42, Table 1.1-14	2.51E-02	8.55E-02	2.47E-04	1.08E-03	0.0254	0.0865	2.41E-05
Methyl chloride	5.30E-04	lb/ton	AP-42, Table 1.1-14	8.32E-02	2.83E-01	8.17E-04	3.58E-03	0.0840	0.2867	7.97E-05
Methyl ethyl ketone	3.90E-04	lb/ton	AP-42, Table 1.1-14	6.12E-02	2.08E-01	6.01E-04	2.63E-03	0.0618	0.2109	5.86E-05
Methyl hydrazine	1.70E-04	lb/ton	AP-42, Table 1.1-14	2.67E-02	9.08E-02	2.62E-04	1.15E-03	0.0269	0.0919	2.56E-05
Methyl methacrylate	2.00E-05	lb/ton	AP-42, Table 1.1-14	3.14E-03	1.07E-02	3.08E-05	1.35E-04	0.0032	0.0108	3.01E-06
Methyl tert butyl ether	3.50E-05	lb/ton	AP-42, Table 1.1-14	5.49E-03	1.87E-02	5.40E-05	2.36E-04	0.0055	0.0189	5.26E-06
Methylene chloride	2.90E-04	lb/ton	AP-42, Table 1.1-14	4.55E-02	1.55E-01	4.47E-04	1.96E-03	0.0460	0.1568	4.36E-05
Phenol	1.60E-05	lb/ton	AP-42, Table 1.1-14	2.51E-03	8.55E-03	2.47E-05	1.08E-04	0.0025	0.0087	2.41E-06
Propionaldehyde	3.80E-04	lb/ton	AP-42, Table 1.1-14	5.96E-02	2.03E-01	5.86E-04	2.57E-03	0.0602	0.2055	5.71E-05
Tetrachloroethylene	4.30E-05	lb/ton	AP-42, Table 1.1-14	6.75E-03	2.30E-02	6.63E-05	2.90E-04	0.0068	0.0233	6.47E-06
Toluene	2.40E-04	lb/ton	AP-42, Table 1.1-14	3.77E-02	1.28E-01	3.70E-04	1.62E-03	0.0380	0.1298	3.61E-05
1,1,1-Trichloroethane	2.00E-05	lb/ton	AP-42, Table 1.1-14	3.14E-03	1.07E-02	3.08E-05	1.35E-04	0.0032	0.0108	3.01E-06
Styrene	2.50E-05	lb/ton	AP-42, Table 1.1-14	3.92E-03	1.34E-02	3.85E-05	1.69E-04	0.0040	0.0135	3.76E-06
Xylenes	3.70E-05	lb/ton	AP-42, Table 1.1-14	5.81E-03	1.98E-02	5.70E-05	2.50E-04	0.0059	0.0200	5.56E-06
Vinyl acetate	7.60E-06	lb/ton	AP-42, Table 1.1-14	1.19E-03	4.06E-03	1.17E-05	5.13E-05	0.0012	0.0041	1.14E-06
Total PCDD/PCDF	2.44E-07	lb/ton	AP-42, Table 1.1-12	3.83E-05	1.30E-04	3.76E-07	1.65E-06	0.0000	0.0001	3.67E-08
OTHER HAPS										
HCl	0.01	lb/ton		1.57	5.34	0.02	0.07	1.58	5.41	1.50E-03
HF	0.016	lb/ton		2.51	8.55	0.02	0.11	2.54	8.65	2.41E-03

TOTAL HAPS

20.63

TABLE B-4
WESTERN GREENBRIER, LLC
Estimate of Emissions During Startup of CFB and Kiln

CFB OPERATING DATA		
	Coal	Oil
Input (MMBtu/hr)	1,017	400
HHV (Btu/lb) or (Btu/gal)	4,170	140,000
Fuel, ton/hr or gal/hr	122	2,857

POLLUTANT	CFB - Normal Operation				CFB - Oil Fired for Startup			
	EMISSION FACTOR		REFERENCE	EMISSION RATE	EMISSION FACTOR		REFERENCE	EMISSION RATE
	factor	units		LB/HR	factor	units		LB/HR
CRITERIA POLLUTANTS								
PM/PM10	0.03	lb/MMBtu	Vendor - baghouse	30.5	3.3	lb/1000 gal	AP-42, Fuel Oil Comb	9.43
SO2	0.14	lb/MMBtu	Vendor - FDA	142.4	0.05	lb/MMBtu	Oil Sulfur content= 0.05%	20.29
NOx	0.10	lb/MMBtu	Vendor - SNCR	101.7	0.25	lb/MMBtu	Vendor	100.00
CO	0.20	lb/MMBtu	Vendor	203.4	0.07	lb/MMBtu	Vendor	28.00
VOC	0.006	lb/MMBtu	Similar Unit - AVG	6.1	0.013	lb/MMBtu	Vendor	5.20
Pb	0.00042	lb/ton	AP-42, Table 1.1-18	0.0512	0.000009	lb/MMBtu	AP-42, Table 1.3-10	0.0036
H2SO4	0.006	lb/MMBtu	Vendor	6.1	0.006	lb/MMBtu		2.40

KILN OPERATING DATA		
	Coal	Oil
Input (MMBtu/hr)	37	37
HHV (Btu/lb) or (Btu/gal)	12,000	140,000
Fuel, ton or gal/hr	2	264

POLLUTANT	Kiln - Normal Operation				Kiln - Oil Fired for Startup			
	EMISSION FACTOR		REFERENCE	EMISSION RATE	EMISSION FACTOR		REFERENCE	EMISSION RATE
	factor	units		LB/HR	factor	units		LB/HR
CRITERIA POLLUTANTS								
PM/PM10	0.03	lb/MMBtu	Vendor	1.11	3.3	lb/1000 gal	AP-42, Fuel Oil Comb	0.87
SO2	0.14	lb/MMBtu	Vendor - FDA	5.18	0.05	lb/MMBtu	Oil Sulfur content= 0.05%	1.88
NOx	36.4	lb/hr	Vendor	36	0.25	lb/MMBtu	Vendor	9.25
CO	22	lb/hr	Vendor	22	0.07	lb/MMBtu		2.59
VOC	0.12	lb/MMBtu	Assume Same as FBC	4.44	0.013	lb/MMBtu		0.48
Pb	0.00042	lb/ton	AP-42, Table 1.1-18	0.0155	0.000009	lb/MMBtu	AP-42, Table 1.3-10	0.00033
H2SO4	0.006	lb/MMBtu	Vendor	0.2220	0.006	lb/MMBtu	Vendor	0.22

POLLUTANT	CFB/Kiln	CFB/Kiln
	Normal	Startup
	LB/HR	
CRITERIA POLLUTANTS		
PM/PM10	31.62	10.3
SO2	147.56	22.2
NOx	138.10	109.3
CO	225.41	30.6
VOC	10.54	5.7
Pb	0.07	0.004
H2SO4	6.32	2.62

- 1 Application based on CFB and Kiln operating at full load 8,760 hours
2 CFB and Kiln not expected to startup in same hour.

TABLE B-5
WESTERN GREENBRIER, LLC
Estimate of Emissions from Cooling Tower

Cooling Tower Data

Water Circulation Rate	50,000	gpm
Drift	0.0005	%
Drift Loss	0.25	gpm
Total Dissolved Solids(TDS)	6,300	ppm
Operating hours	8,760	hours per year

PM Emission Rate Calculation

Particulate matter (PM) emissions from the induced draft mechanical cooling tower were estimated using procedures from USEPA AP42, Section 13.4, Wet Cooling Tower.

$$\begin{aligned}
 \text{PM} &= \text{Drift loss} \times \text{TDS} \\
 \text{PM} &= (\text{Gal/min}) \times (\text{ppm}) \times (1/\text{E}06) \times (60 \text{ min/hr}) \times (8.345 \text{ lb/gal})
 \end{aligned}$$

Emission Estimates

lb/hr	ton/yr
0.79	3.45

TABLE B-6
WESTERN GREENBRIER, LLC
Material Handling Emission Estimates

Reference	Source ID	Source Description	Vent Point/Control	Vent ID	Control ID	Operating Capacity		Flow Rate (ACFM)	Stack Height (feet)		Emission Factor Uncontrolled		Control	Building Credit		Emissions - Uncontrolled				Emissions - Controlled				TOTALS
						hr/day	day/week		PM	AM	PM	AM		PM	AM	PM	AM	PM	AM	PM	AM	PM	PM10	
COAL HANDLING OPERATIONS	C-41	Coal from Dump Trucks To Coal Pile	Outdoor Unloading	EP-17	WS-31	16	3,800,320		2,88E-04	1.41E-04	95%	0.18	0.389	0.391	0.185	0.0362	0.245	0.1656	0.0585					
	C-45	Coal from Dump Trucks To Coal Pile	Outdoor Coal Loading Area Screens	EP-07	WS-02	7	500		2,88E-04	1.41E-04	70%	0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	C-46	Coal from Dump Trucks To Coal Pile	Outdoor Coal Loading Area Screens	EP-07	WS-02	24	7	300		2,88E-04	1.41E-04	70%	0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585				
	C-47	Coal from Dump Trucks To Coal Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	C-48	Coal from Dump Trucks To Coal Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	C-49	Coal from Dump Trucks To Coal Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	C-50	Coal from Dump Trucks To Coal Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	C-51	Coal from Dump Trucks To Coal Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	C-52	Coal from Dump Trucks To Coal Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	C-53	Coal from Dump Trucks To Coal Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
LIMESTONE HANDLING OPERATIONS	L-1	Limestone from Dump Trucks to Pile	Outdoor Unloading	EP-11	WS-05	16	5	52.5	218,400			0.028	0.113	0.058	0.027	0.138	0.0865	0.0286	0.0136					
	L-2	Limestone from Dump Trucks to Pile	Head Chute Transfer/Screens	EP-13	WS-05	6	7	100	218,400			0.053	0.025	0.058	0.027	0.053	0.0025	0.0058	0.0027					
	L-3	Limestone from Dump Trucks to Pile	Head Chute Transfer/Screens	EP-13	WS-05	6	7	100	218,400			0.053	0.025	0.058	0.027	0.053	0.0025	0.0058	0.0027					
	L-4	Limestone from Dump Trucks to Pile	Limestone Preparation System Dust Collector	EP-13	WS-05	6	7	100	218,400			0.053	0.025	0.058	0.027	0.053	0.0025	0.0058	0.0027					
	L-5	Limestone from Dump Trucks to Pile	Limestone Preparation System Dust Collector	EP-13	WS-05	6	7	100	218,400			0.053	0.025	0.058	0.027	0.053	0.0025	0.0058	0.0027					
	L-6	Limestone from Dump Trucks to Pile	Limestone Preparation System Dust Collector	EP-13	WS-05	6	7	100	218,400			0.053	0.025	0.058	0.027	0.053	0.0025	0.0058	0.0027					
	L-7	Limestone from Dump Trucks to Pile	Limestone Preparation System Dust Collector	EP-13	WS-05	6	7	100	218,400			0.053	0.025	0.058	0.027	0.053	0.0025	0.0058	0.0027					
	L-8	Limestone from Dump Trucks to Pile	Limestone Preparation System Dust Collector	EP-13	WS-05	6	7	100	218,400			0.053	0.025	0.058	0.027	0.053	0.0025	0.0058	0.0027					
	L-9	Limestone from Dump Trucks to Pile	Limestone Preparation System Dust Collector	EP-13	WS-05	6	7	100	218,400			0.053	0.025	0.058	0.027	0.053	0.0025	0.0058	0.0027					
	L-10	Limestone from Dump Trucks to Pile	Limestone Preparation System Dust Collector	EP-13	WS-05	6	7	100	218,400			0.053	0.025	0.058	0.027	0.053	0.0025	0.0058	0.0027					
ASH HANDLING OPERATIONS	A-1	Ash from Dump Trucks to Pile	Outdoor Unloading	EP-17	WS-31	16	3,800,320		2,88E-04	1.41E-04	95%	0.18	0.389	0.391	0.185	0.0362	0.245	0.1656	0.0585					
	A-2	Ash from Dump Trucks to Pile	Outdoor Coal Loading Area Screens	EP-07	WS-02	7	500		2,88E-04	1.41E-04	70%	0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	A-3	Ash from Dump Trucks to Pile	Outdoor Coal Loading Area Screens	EP-07	WS-02	24	7	300		2,88E-04	1.41E-04	70%	0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585				
	A-4	Ash from Dump Trucks to Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	A-5	Ash from Dump Trucks to Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	A-6	Ash from Dump Trucks to Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	A-7	Ash from Dump Trucks to Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	A-8	Ash from Dump Trucks to Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	A-9	Ash from Dump Trucks to Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
	A-10	Ash from Dump Trucks to Pile	Head Coal Loading Area Screens	EP-07	WS-02	11	7	300	2,500	100		0.080	0.042	0.381	0.185	0.0269	0.0127	0.1173	0.0585					
KILN/CLINKER PRODUCTION	K-1	Alumina Silica	Bin Filler 200-170	EP-20	FF-14	1	9	25	6,500	2,500	62	1,02E-03	4,81E-04	90%	0.025	0.012	0.003	0.0052	0.0002					
	K-2	Alumina Silica	Bin Filler 200-170	EP-20	FF-14	1	9	25	6,500	2,500	62	1,02E-03	4,81E-04	90%	0.025	0.012	0.003	0.0052	0.0002					
	K-3	Alumina Silica	Bin Filler 200-170	EP-20	FF-14	1	9	25	6,500	2,500	62	1,02E-03	4,81E-04	90%	0.025	0.012	0.003	0.0052	0.0002					
	K-4	Alumina Silica	Bin Filler 200-170	EP-20	FF-14	1	9	25	6,500	2,500	62	1,02E-03	4,81E-04	90%	0.025	0.012	0.003	0.0052	0.0002					
	K-5	Alumina Silica	Bin Filler 200-170	EP-20	FF-14	1	9	25	6,500	2,500	62	1,02E-03	4,81E-04	90%	0.025	0.012	0.003	0.0052	0.0002					
	K-6	Alumina Silica	Bin Filler 200-170	EP-20	FF-14	1	9	25	6,500	2,500	62	1,02E-03	4,81E-04	90%	0.025	0.012	0.003	0.0052	0.0002					
	K-7	Alumina Silica	Bin Filler 200-170	EP-20	FF-14	1	9	25	6,500	2,500	62	1,02E-03	4,81E-04	90%	0.025	0.012	0.003	0.0052	0.0002					
	K-8	Alumina Silica	Bin Filler 200-170	EP-20	FF-14	1	9	25	6,500	2,500	62	1,02E-03	4,81E-04	90%	0.025	0.012	0.003	0.0052	0.0002					
	K-9	Alumina Silica	Bin Filler 200-170	EP-20	FF-14	1	9	25	6,500	2,500	62	1,02E-03	4,81E-04	90%	0.025	0.012	0.003	0.0052	0.0002					
	K-10	Alumina Silica	Bin Filler 200-170	EP-20	FF-14	1	9	25	6,500	2,500	62	1,02E-03	4,81E-04	90%	0.025	0.012	0.003	0.0052	0.0002					
WOODCHIPS OPERATIONS	W-1	Woodchips Storage Silos - Three units	Bin Filler	EP-35	FF-29	15	7	12	78,624	2,000	25	3,85E-04	1,82E-04	90%	0.005	0.002	0.015	0.0007	0.0007					
	W-2	Woodchips Storage Silos - Three units	Bin Filler	EP-35	FF-29	15	7	12	78,624	2,000	25	3,85E-04	1,82E-04	90%	0.005	0.002	0.015	0.0007	0.0007					
	W-3	Woodchips Storage Silos - Three units	Bin Filler	EP-35	FF-29	15	7	12	78,624	2,000	25	3,85E-04	1,82E-04	90%	0.005	0.002	0.015	0.0007	0.0007					
	W-4	Woodchips Storage Silos - Three units	Bin Filler	EP-35	FF-29	15	7	12	78,624	2,000	25	3,85E-04	1,82E-04	90%	0.005	0.002	0.015	0.0007	0.0007					
	W-5	Woodchips Storage Silos - Three units	Bin Filler	EP-35	FF-29	15	7	12	78,624	2,000	25	3,85E-04	1,82E-04	90%	0.005	0.002	0.015	0.0007	0.0007					
	W-6	Woodchips Storage Silos - Three units	Bin Filler	EP-35	FF-29	15	7	12	78,624	2,000	25	3,85E-04	1,82E-04	90%	0.005	0.002	0.015	0.0007	0.0007					
	W-7	Woodchips Storage Silos - Three units	Bin Filler	EP-35	FF-29	15	7	12	78,624	2,000	25	3,85E-04	1,82E-04	90%	0.005	0.002	0.015	0.0007	0.0007					
	W-8	Woodchips Storage Silos - Three units	Bin Filler	EP-35	FF-29	15	7	12	78,624	2,000	25	3,85E-04	1,82E-04	90%	0.005	0.002	0.015	0.0007	0.0007					
	W-9	Woodchips Storage Silos - Three units	Bin Filler	EP-35	FF-29	15	7	12	78,624	2,000	25	3,85E-04	1,82E-04	90%	0.005	0.002	0.015	0.0007	0.0007					
	W-10	Woodchips Storage Silos - Three units	Bin Filler	EP-35	FF-29	15	7	12	78,624	2,000	25	3,85E-04	1,82E-04	90%	0.005	0.002	0.015	0.0007	0.0007					

TABLE B-7
WESTERN GREENBRIER, LLC
EMISSION FACTORS FOR MATERIAL HANDLING

Emission Unit	Pollutant		Units	Reference
	TSP	PM ₁₀		
Coal Transfer	0.000298	0.000141	lb/ton	AP-42 Fifth Edition, Table 13.2.4-1 and Equation (1)
Limestone Transfer	0.000527	0.000249	lb/ton	AP-42 Fifth Edition, Table 13.2.4-1 and Equation (1)
Ground Limestone Transfer	0.0055	0.0026	lb/ton	AP-42 Fifth Edition, Table 13.2.4-1 and Equation (1)
Bottom Ash Transfer	0.000146	0.000069	lb/ton	AP-42 Fifth Edition, Table 13.2.4-1 and Equation (1)
Fly Ash Transfer	0.003667	0.001735	lb/ton	AP-42 Fifth Edition, Table 13.2.4-1 and Equation (1)
Alumina Transfer	0.001017	0.000481	lb/ton	AP-42 Fifth Edition, Table 13.2.4-1 and Equation (1)
Wood Waste Transfer	0.000385	0.000182	lb/ton	AP-42 Fifth Edition, Table 13.2.4-1 and Equation (1)
Fly Ash/ Gypsum Mixture	0.000146	0.000069	lb/ton	AP-42 Fifth Edition, Table 13.2.4-1 and Equation (1)
Raw Meal Transfer	0.000385	0.000182	lb/ton	AP-42 Fifth Edition, Table 13.2.4-1 and Equation (1)
Clinker Transfer	0.000385	0.000182	lb/ton	AP-42 Fifth Edition, Table 13.2.4-1 and Equation (1)
Screening Operation	0.0250	0.0087	lb/ton	AP-42 Fifth Edition, Table 11.19.2-2
Screening Operation - Coal	0.1	0.047	lb/ton	WVDEP General Permit 10
Crushing - Limestone/Clinker	0.0054	0.0024	lb/ton	AP-42 Fifth Edition, Table 11.19.2-2
Crushing - Coal	0.02	0.0094	lb/ton	WVDEP General Permit 10

Wind speed	7 mph	Per WVDEP guidance Documents
Waste coal moisture content	12 %	Engineering Estimate
Limestone moisture content	8 %	Engineering Estimate
Ground Limestone	1.5 %	Engineering Estimate
Ash / Gypsum moisture content	20 %	Engineering Estimate
Fly ash moisture content	2 %	Engineering Estimate
Alumina moisture	5 %	Engineering Estimate
Raw Meal moisture	10 %	Engineering Estimate
Clinker moisture	10 %	Engineering Estimate
Wood Waste moisture	10 %	Engineering Estimate
Days with >=0.01 in rain per year	170 days	Per WVDEP guidance Documents

TABLE B-8
WESTERN GREENBRIER, LLC
Road Emissions

Road Segment	Source	Annual	Load	Truck	Trips		W (Ton)	k		sL	f	C lb/vmt	P	E (lbs/vmt)		L (mi)	VDT/yr (mi)	Emission (TPY)	
		Throughput (TPY)	(Ton)	(Ton)	in	out		PM10	TSP					PM10	TSP			PM10	TSP
P-1 In to plant	Waste Coal Delivery	2,620,800	40	15	65,520		52	0.016	0.082	8.2	0.9	0.00047	170	0.24	1.24	0.170	11,168	1.35	6.94
	Limestone Delivery	218,400	20	15	10,920												1,861	0.23	1.16
	Ash Loadout	786,240	40	15													0	0.00	0.00
	Quality Coal Delivery	10,400	40	15	260												44	0.0054	0.0275
	Alumina	5,200	20	15	260												44	0.0054	0.0275
P-1 Total																		1.35	8.15
P-2 Out	Waste Coal Delivery	2,620,800	40	15	45,864		26	0.016	0.082	8.2	0.95	0.00047	170	0.04	0.22	0.170	7,818	0.31	1.58
	Limestone Delivery	218,400	20	15	10,920												1,861	0.07	0.38
	Ash Loadout	786,240	40	15	19,656												3,350	0.13	0.68
	Quality Coal Delivery	10,400	40	15	260												44	0.0017	0.0089
	Alumina	5,200	20	15	260												44	0.0017	0.0089
P-2 Total																		0.31	2.65
P-3	Waste Coal Delivery	2,620,800	40	15	65,520	45,864	39	0.016	0.082	8.2	0.95	0.00047	170	0.08	0.40	0.034	3,797	0.15	0.77
	Limestone Delivery	218,400	20	15	10,920	10,920											745	0.03	0.15
	Ash Loadout	786,240	40	15		19,656											670	0.03	0.14
	Quality Coal Delivery	10,400	40	15	260	260											18	0.0007	0.0036
	Alumina	5,200	20	15	260	260											18	0.0007	0.0036
P-3 Total																		0.15	1.06
P-4	Wood Chips	15,600	20	15	780	780	26	0.016	0.082	8.2	0.9	0.00047	170	0.08	0.43	0.10	156	0.02	0.10
	Woodbrick	10,400	20	15	520	520											104	0.01	0.06
	Ash Product	52,000	20	15	2,600	2,600											520	0.06	0.32
P-4 Total																		0.09	0.48
																		1.90	12.33

$E = [(k)(sL/2)^{0.65} (W/3)^{1.5} C] (1-P/4N) (1-f)$

Emission equations taken from AP-42 13.2.1

k = Particle size multiplier

sL = silt loading - g/m² (From Table 13.2.1-4 for quarry)

C = Emission Factor for brake, exhaust and tire wear from Table 13.2.1-2

VDT/yr = annual vehicle distance traveled

W = Mean Vehicle Weight (tons)

L = Length of paved roadway

t = trips/yr

P = Number of wet days, from Figure 13.2.1-2

F = Control efficiency

watering/sweeping

N = Number of days in averaging period

Assume = 260

based on 5 day/week

Operation Schedule	truck/day	day/week
Waste Coal Deliveries	160	5
Quality Coal	1	5
Limestone	27	5
Ash Loadout	64	5
Ash Product	10	5
Alumina	1	5
Wood Chips	3	5
Woodbrick	2	5

TABLE B-9
WESTERN GREENBRIER, LLC
Estimate of Emissions from Storage Piles

Source ID No.	Emission Point ID	Stockpile Description	Silt Content of Material %	Stockpile base area Max. sqft	Control Device ID Number	Control Efficiency %	E lb/acre/day	Emissions - Controlled			
								lb/hr		ton/yr	
								PM	PM10	PM	PM10
C-01	EP-02	Waste Coal Pile	2.2	8,160	WS-01	50%	2.759	0.011	0.005	0.047	0.022
L-01	EP-11	Limestone Pile	1.6	5,915	WS-05	50%	2.006	0.006	0.0027	0.025	0.012
TOTAL								0.016	0.008	0.072	0.034

Source:

Air Pollution Engineering Manual

Storage Pile Wind Erosion (Active Storage)

$$E = 1.7 \cdot [s/1.5] \cdot [(365-p)/235] \cdot [f/15] = (\text{lb/day/acre})$$

Where:

		Value	Basis
s =	silt content of material		AP-42 Fifth Edition, Table 13.2.4-1
p =	number of days with >0.01 inch of precipitation per year	170	Table B - General Permit GC-10
f =	percentage of time that the unobstructed wind speed exceeds 12 mph at the mean pile height	20	WVDEP recommended default

TABLE B-10
WESTERN GREENBRIER, LLC
Emissions from Emergency Fire Pump

	Emission Factor		Emissions per Unit			Total
	lb/hp-hr		lb/hr	ton/yr		ton/yr
NOx	0.031		9.30	1.86		1.86
CO	0.007		2.00	0.40		0.40
PM	0.0022		0.66	0.13		0.13
VOC	0.0025		0.74	0.15		0.15
SO2			0.015	0.00		0.003
<div> <div>1 Number of Diesel Fire Pumps</div> <div>1 Units</div> </div> <div> <div>2 Rated at</div> <div>300 hp</div> </div> <div> <div>3 Annual operating hours</div> <div>400 hr/yr</div> </div> <div> <div>4 Emissions Factors for NOx, CO, PM and VOC from</div> <div>US EPA, AP-42, Section 3.3 "Gasoline and Industrial Engines"</div> </div> <div> <div>5 Emission Rate for SO2 based on</div> <div>0.05% Sulfur in Fuel</div> </div> <div> <div>6 All HAPs have "E" rating - not utilized.</div> </div> <div> <div>7 Fuel heating value</div> <div>140,000 Btu/gal</div> </div> <div> <div>8 Assumed fuel consumption</div> <div>7,000 Btu/hp-hr</div> <div>2.1 MMBtu/hr</div> <div>15 gal/hr</div> <div>6,000 gal/yr</div> </div>						